DOCKET NO. I20 06799 US
SERIAL NO. 10/772,971
PATENT

IN THE CLAIMS

Please amend the claims as follows.

1.   (Currently Amended)   A method, comprising:

receiving a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

identifying one or more parameters of a model using at least a portion of the projection, the model associating the first signal and the first portion of the second signal; and

outputting the one or more model parameters for use in processing one or more signals;

wherein the projection comprises an upper triangular matrix having two diagonals; and

wherein identifying the one or more model parameters comprises using one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single section of the upper triangular matrix defined by the two diagonals.

-2-

2.   (Original)   The method of Claim 1, wherein identifying the one or more model

parameters comprises:

identifying one or more pole candidates and one or more model candidates using the

projection; and

selecting at least one of the one or more pole candidates and selecting at least one of the

one or more model candidates as the model parameters.

3.   (Currently Amended)   The method of Claim 1, wherein:

~~the projection comprises an orthogonal matrix and an upper triangular matrix; and~~

the upper triangular matrix has a plurality of values along a first <u>of the</u> diagonals, ~~of the~~

~~upper triangular matrix;~~ each value being greater than or equal to zero.

4.   (Currently Amended)   The method of Claim <u>1</u> [[3]], wherein identifying

the one or more model parameters comprises:

defining <u>the</u> one or more <u>defined</u> areas in the upper triangular matrix; and

identifying one or more pole candidates using the one or more defined areas, the one or

more model parameters comprising at least one of the one or more pole candidates.

-3-

5.   (Currently Amended)   The method of Claim 4, wherein:

the upper triangular matrix comprises the first diagonal and a second diagonal, the

diagonals divide [[ing]] the upper triangular matrix into upper, lower, left, and right sections; and

the one or more defined areas in the upper triangular matrix are located in the right

section of the upper triangular matrix.

6.   (Currently Amended)   The method of Claim 1 [[4]], wherein:

the one or more defined areas in the upper triangular matrix comprise one or more first

defined areas; and

identifying the one or more model parameters further comprises:

defining one or more second areas in the upper triangular matrix; and

identifying one or more model candidates using the one or more second defined

areas, the one or more model parameters comprising at least one of the one or more model

candidates.

7.   (Currently Amended)   The method of Claim 6, wherein each of the one or

more second defined areas represents a matrix centered along the first one of the diagonals of the

upper triangular matrix.

-4-

8.   (Currently Amended)   The method of Claim 7, wherein:

each matrix centered along one of the ~~first~~ diagonals of the upper triangular matrix comprises a backward column Hankel matrix; and

identifying the one or more model candidates comprises rewriting each backward column Hankel matrix as a forward column Hankel matrix.

9.   (Original)   The method of Claim 4, wherein:

defining the one or more areas in the upper triangular matrix comprises defining multiple areas in the upper triangular matrix; and

identifying the one or more model parameters comprises identifying one or more model parameters for each of the defined areas in the upper triangular matrix.

10.   (Original)   The method of Claim 9, wherein:

the one or more model parameters associated with different defined areas in the upper triangular matrix are different; and

identifying the one or more model parameters further comprises selecting the one or more model parameters associated with a specific one of the defined areas in the upper triangular matrix.

-5-

11.   (Currently Amended)   The method of Claim 10, wherein:

the upper triangular matrix comprises a first upper triangular matrix; and

selecting the one or more model parameters associated with the specific one of the defined areas in the first upper triangular matrix comprises:

for each defined area in the first upper triangular matrix, generating a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix to form ~~a second orthogonal matrix and~~ a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted R_{E3};

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

-6-

12.   (Currently Amended)   An apparatus, comprising:

at least one input operable to receive a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal; and

at least one processor operable to:

generate a projection associated with the first and second signals and to identify one or more parameters of a model associating the first signal and the first portion of the second signal using at least a portion of the projection, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal; and

output the one or more model parameters for use in processing one or more signals;

wherein the projection comprises an upper triangular matrix having two diagonals; and

wherein the at least one processor is operable to identify the one or more model parameters using one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single section of the upper triangular matrix defined by the two diagonals.

-7-

13.   (Original)   The apparatus of Claim 12, wherein the at least one processor is operable to identify the one or more model parameters by:

identifying one or more pole candidates and one or more model candidates using the projection; and

selecting at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

14.   (Currently Amended)   The apparatus of Claim 12, wherein:

the projection comprises an orthogonal matrix and an upper triangular matrix; and

the upper triangular matrix has a plurality of values along a first of the diagonals, of the upper triangular matrix, each value being greater than or equal to zero.

15.   (Currently Amended)   The apparatus of Claim 12 [[14]], wherein the at least one processor is operable to identify the one or more model parameters by:

defining the one or more areas in the upper triangular matrix; and

identifying one or more pole candidates using the one or more defined areas, the one or more model parameters comprising at least one of the one or more pole candidates.

-8-

16.   (Currently Amended)   The apparatus of Claim [[15]] 12, wherein:

the one or more defined areas in the upper triangular matrix comprise one or more first

defined areas; and

the at least one processor is operable to identify the one or more model parameters further

by:

defining one or more second areas in the upper triangular matrix; and

identifying one or more model candidates using the one or more second defined

areas, the one or more model parameters comprising at least one of the one or more model

candidates.

17.   (Currently Amended)   The apparatus of Claim 16, wherein:

each of the one or more second defined areas represents a matrix centered along one of

the first diagonals of the upper triangular matrix;

each matrix centered along one of the first diagonals of the upper triangular matrix

comprises a backward column Hankel matrix; and

the at least one processor is operable to identify the one or more model candidates by

rewriting each backward column Hankel matrix as a forward column Hankel matrix.

18.   (Original)   The apparatus of Claim 15, wherein:

the at least one processor is operable to define the one or more areas in the upper triangular matrix by defining multiple areas in the upper triangular matrix; and

the at least one processor is operable to identify the one or more model parameters by identifying one or more model parameters for each of the defined areas in the upper triangular matrix.

-10-

19.   (Currently Amended)   The apparatus of Claim 18, wherein:

the upper triangular matrix comprises a first upper triangular matrix;

the one or more model parameters associated with different defined areas in the first upper triangular matrix are different; and

the at least one processor is operable to select the one or more model parameters associated with a specific one of the defined areas in the upper triangular matrix by:

for each defined area in the first upper triangular matrix, generating a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix to form ~~a second orthogonal matrix and~~ a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted R_{E3};

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

-11-

20.   (Currently Amended)   A computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code for:

receiving a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion associated with at least one disturbance, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

identifying one or more parameters of a model associating the first signal and the first portion of the second signal using at least a portion of the projection; and

outputting the one or more model parameters for use in processing one or more signals;

wherein the projection comprises an upper triangular matrix having two diagonals; and

wherein identifying the one or more model parameters comprises using one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single section of the upper triangular matrix defined by the two diagonals.

-12-

21.   (Original)   The computer program of Claim 20, wherein the computer readable program code for identifying the one or more model parameters comprises computer readable program code for:

identifying one or more pole candidates and one or more model candidates using the projection; and

selecting at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

22.   (Currently Amended)   The computer program of Claim 20, wherein:

the projection comprises an orthogonal matrix and an upper triangular matrix; and

the upper triangular matrix has a plurality of values along [[a]] one of the diagonals, of the upper triangular matrix, each value being greater than or equal to zero.

-13-

23.   (Currently Amended)   The computer program of Claim 20 [[22]], wherein

the one or more defined areas in the upper triangular matrix comprise one or more first

defined areas; and

the computer readable program code for identifying the one or more model parameters

comprises computer readable program code for:

defining the one or more first areas in the upper triangular matrix;

identifying one or more pole candidates using the one or more first defined areas;

defining one or more second areas in the upper triangular matrix; and

identifying one or more model candidates using the one or more second defined

areas, the one or more model parameters comprising at least one of the one or more pole

candidates and at least one of the one or more model candidates.

24.   (Currently Amended)   The computer program of Claim 23, wherein:

each of the one or more second defined areas represents a matrix centered along one of

the first diagonals of the upper triangular matrix;

each matrix centered along one of the first diagonals of the upper triangular matrix

comprises a backward column Hankel matrix; and

the computer readable program code for identifying the one or more model candidates

further comprises computer readable program code for rewriting each backward column Hankel

matrix as a forward column Hankel matrix.

-14-

25.   (Original)   The computer program of Claim 23, wherein:

the computer readable program code for defining the one or more first areas in the upper

triangular matrix defines multiple first areas in the upper triangular matrix; and

the computer readable program code for identifying the one or more model parameters

comprises computer readable program code for identifying one or more model parameters for

each of the first defined areas in the upper triangular matrix.

26.   (Original)   The computer program of Claim 25, wherein:

the upper triangular matrix comprises a first upper triangular matrix;

the one or more model parameters associated with different first defined areas in the first

upper triangular matrix are different; and

the computer readable program code for identifying the one or more model parameters

further comprises computer readable program code for selecting the one or more model

parameters associated with a specific one of the first defined areas in the upper triangular matrix.

-15-

27.   (Currently Amended)   The computer program of Claim 26, wherein the

computer readable program code for selecting the one or more model parameters associated with

the specific one of the first defined areas comprises computer readable program code for:

for each first defined area in the first upper triangular matrix, generating a matrix

comprising a forward column Hankel matrix based on a prediction error, the prediction error

associated with the one or more model parameters that are associated with that first defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix to form

a second orthogonal matrix and a second upper triangular matrix, each second upper triangular

matrix having an upper right portion denoted R_{E3};

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the first defined area having

the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

28.   (Previously Presented)   The method of Claim 1, wherein the projection at

least partially isolates the first portion of the second signal from the second portion of the second

signal in an orthogonal space.

-16-

29.   (Previously Presented)   The apparatus of Claim 12, wherein the at least one

processor is operable to output the one or more model parameters for use in processing one or

more signals by:

storing the one or more model parameters; and

using the one or more stored model parameters to de-noise the second signal.

-17-